

Metcalf Energy Center, LLC

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1 Blanchard Road
Coyote, CA 95013

January 24, 2018

BAY AREA AIR QUALITY
MANAGEMENT DISTRICT

Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105-2097
Attn: Title V Reports

Re: Metcalf Energy Center #B2183
Title V CEMS Semi-Annual Monitoring Report
Reporting Period: July 1 – December 31, 2017

To Whom It May Concern:

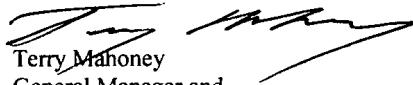
Enclosed is the Title V CEMS Semi-Annual Monitoring Report for the Metcalf Energy Center (“MEC”) for the reporting period from July 1 – December 31, 2017.

MEC is currently in compliance with the District CEMS regulations. MEC maintained compliance with the monitoring requirements listed in the Title V permit for MEC during this reporting period, with the exception of one event. Please refer to Appendix 1 for further details.

By signing this report I am certifying that based on information and belief formed after reasonable inquiry, the statements and information in the attached report are true, accurate, and complete.

If you have any questions or require additional information, do not hesitate to contact Rosemary Silva, EHS Specialist, at (408) 361-4954.

Sincerely,


Terry Mahoney
General Manager and
Designated Representative/Responsible Official
Metcalf Energy Center, LLC.

Enclosures: Title V Semi-Annual Report

cc:	Barbara McBride	Calpine Corp
	David Williams	Calpine Corp
	Katherine Piper	Calpine Corp
	Region 9	EPA

Metcalf Energy Center
Title V CEMS Semi-Annual Monitoring Report
July 1, 2017 – December 31, 2017.

Table VII - A
Applicable Limits and Compliance Monitoring Requirements
S-1, GAS TURBINE #1
S-2, GAS TURBINE #2

Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
NOx	BAAQMD 9-3-303	N	125 ppm	BAAQMD 1-520.1	C	CEM	X	
NOx	BAAQMD 9-9-301.1.3	N	9 ppmv @ 15% O ₂ , dry	BAAQMD 9-9-501	C	CEM	X	
NOx	SIP 9-9-301.3	Y	9 ppmv @ 15% O ₂ , dry	SIP 9-9-501	C	CEM	X	
NOx	BAAQMD 9-9-301.2	N	0.15 LB/MMBTU or 5 ppmv	BAAQMD 9-9-501	C	CEM	X	
NOx	NSPS, 40 CFR 60.332 (a)(1)	Y	75 ppmv @ 15% O ₂ , dry, 4-hour rolling average	NSPS 40 CFR 60.334(c.)	C	CEM	X	
		Y	None	40 CFR 75.10	C	CEM	X	
NOx	BAAQMD condition #18310, part 20a	Y	19.2 lb/hr for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 20a	Y	19.2 lb/hr for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load	X	
NOx	BAAQMD condition #18310, part 20a	Y	0.00904 lb/MM BTU for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 20a	Y	0.00904 lb/MM BTU for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load	X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
NOx	BAAQMD condition #18310, part 20b	Y	2.5 ppmv, @ 15% O ₂ , dry, for each turbine/HRSG powertrain, 1-hr average except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load	X	
NOx	BAAQMD condition #18310, part 20b	Y	2.5 ppmv, @ 15% O ₂ , dry, for each turbine/HRSG powertrain, 1-hr average except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 21	Y	240 lb/gas turbine start-up	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 21	Y	480 lb/hr during gas turbine cold start-up or combustor tuning period	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 21	Y	80 lb/gas turbine shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 24a	Y	1362.6 lb/day for S-1, S-3 Gas Turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 25a	Y	123.4 ton/yr for S-1, S-3 Gas Turbines and S-2, S-4 HRSGs, combined (including emissions from commissioning period)	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 20c	Y	18.7 lb/hr, for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load and minimum load	X	
CO	BAAQMD condition #18310, part 20c	Y	18.7 lb/hr, for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
CO	BAAQMD condition #18310, part 20d	Y	0.0088 lb/MM BTU for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load and minimum load	X	
CO	BAAQMD condition #18310, part 20d	Y	0.0088 lb/MM BTU for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 20d	Y	4 ppmv @ 15% O ₂ , dry, for each turbine/HRSG powertrain, 3-hr average, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load and minimum load	X	
CO	BAAQMD condition #18310, part 20d	Y	4 ppmv @ 15% O ₂ , dry, for each turbine/HRSG powertrain, 3-hr average, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 20d	Y	4 ppmv @ 15% O ₂ , dry, for each turbine/HRSG powertrain, 3-hr average, except during turbine startup and shutdown	40 CFR 64.3 (b)(4)(ii)	At least 4 times per hour (CAM Plan)	CEM	X	
CO	BAAQMD condition #18310, part 21	Y	2,514 lb/gas turbine startup	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 21	Y	5028 lb/hr during gas turbine cold start-up or combustor tuning period	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 21	Y	902 lb/gas turbine shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 24b	Y	7,891.1 lb/day for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, Part 27b	C	CEM	X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
CO	BAAQMD condition #18310, part 25b	Y	588 ton/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined (includes emissions from commissioning period)	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO ₂		Y	None	40 CFR 75.10	C	fuel flow monitor and CO ₂ calculation	X	
SO ₂	BAAQMD 9-1-301	Y	GLC ¹ of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N		X	
SO ₂	BAAQMD 9-1-302	Y	300 ppm (dry)		N		X	
SO ₂	NSPS 40 CFR 60.333(a)	Y	0.015% (vol.) @ 15% O ₂ (dry)	NSPS 40 CFR 60.334(h)	N		X	
SO ₂	NSPS 40 CFR 60.333(b)	Y	Total sulfur content of fuel not to exceed 0.8 percent by weight (8000 ppmw)	NSPS 40 CFR 60.334(h)(3)(i) and BAAQMD condition #18310, Part 45	P/M	Fuel sulfur content testing	X	
SO ₂		Y	None	40 CFR 75.11, 40 CFR 75, Appendix D, part 2.3	P/A	Fuel measurements, calculations	X	
SO ₂	BAAQMD condition #18310, part 20g	Y	1.28 lb/hr, for each turbine/HRSH powertrain	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
SO ₂	BAAQMD condition #18310, part 20g	Y	1.28 lb/hr, for each turbine/HRSH powertrain	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
SO2	BAAQMD condition #18310, part 20g	Y	0.0006lb/MM BTU, for each turbine/HRSG powertrain	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
SO2	BAAQMD condition #18310, part 20g	Y	0.0006lb/MM BTU, for each turbine/HRSG powertrain	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
SO2	BAAQMD condition #18310, part 24e	Y	57.9 lb/day for each turbine/HRSG powertrain	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
SO2	BAAQMD condition #18310, part 25e	Y	10.6 ton /yr for each turbine/HRSG powertrain (includes emissions from commissioning period)	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
Opacity	BAAQMD 6-1-301	N	> Ringelmann No. 1 for no more than 3 minutes in any hour		N		X	
Opacity	SIP 6-301	Y	> Ringelmann No. 1 for no more than 3 minutes in any hour		N		X	
FP	BAAQMD 6-1-310.3	N	0.15 grain/dscf @ 6% O2		N		X	
FP	SIP 6-310.3	Y	0.15 grain/dscf @ 6% O2		N		X	
PM ₁₀	BAAQMD condition #18310, part 20h	Y	9 lb/hr, for each turbine/HRSG powertrain	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
PM ₁₀	BAAQMD condition #18310, part 20h	Y	0.00452 lb/MM BTU, for each turbine/HRSG powertrain	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
PM ₁₀	BAAQMD condition #18310, part 24d	Y	510 lb/day for S-1, S-3 Gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
PM ₁₀	BAAQMD condition #18310, part 25d	Y	83.34 ton/yr for S-1, S-3 Gas turbines and S-2, S-4 HRSGs, combined (including emissions from commissioning period)	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
POC	BAAQMD condition #18310, part 20f	Y	2.7 lb/hr (as CH4) for each turbine/HRSG powertrain except during turbine startup and shut down	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
POC	BAAQMD condition #18310, part 20f	Y	0.00126 lb/MM BTU (as CH4) for each turbine/HRSG powertrain except during turbine startup and shut down	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
POC	BAAQMD condition #18310, part 21	Y	48 lb/gas turbine startup	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
POC	BAAQMD condition #18310, part 21	Y	16 lb/gas turbine shutdown	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
POC	BAAQMD condition #18310, part 21	Y	96 lb/hr during gas turbine cold start up or combustor tuning period	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
POC	BAAQMD condition #18310, part 24c	Y	230.2 lb/day (as CH4) for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
POC	BAAQMD condition #18310, part 25c	Y	28 ton/yr) for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined (including emissions from commissioning period)	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
NH ₃	BAAQMD condition #18310, part 20e	N	5 ppmv, @ 15% O ₂ dry, averaged over 3 hrs for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, part 27c	C	Ammonia injection rate monitor	X ¹	
Formal-dehyde	BAAQMD condition #18310, part 26a	N	3796 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 29	P/D	Records, calculations	X	
Formal-dehyde	BAAQMD condition #18310, part 26a	N	3796 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 33	P/every two years on P-1 or P-2	Source Test	X	
Benzene	BAAQMD condition #18310, part 26b	N	480 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 29	P/D	Records, calculations	X	
Benzene	BAAQMD condition #18310, part 26b	N	480 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 33	P/every two years on P-1 or P-2	Source Test	X	
Specific PAH Compounds	BAAQMD condition #18310, part 26c	N	22.8 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 29	P/D	Records, calculations	X	
Specific PAH Compounds	BAAQMD condition #18310, part 26c	N	22.8 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 33	P/every two years on P-1 or P-2	Source Test	X	
Heat input limit	BAAQMD condition #18310, part 14	Y	2,124 MM BTU/hr (HHV), 3-hr average for each turbine/HRSG powertrain	BAAQMD condition #18310, part 27a	C	Fuel meter, firing monitor, calculations	X	
Heat input limit	BAAQMD condition #18310, part 15	Y	49,908 MM BTU/calendar day (HHV), for each turbine/HRSG powertrain	BAAQMD condition #18310, part 27a	C	Fuel meter, firing monitor, calculations	X	

¹ Refer to Appendix 1.

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
Heat input limit	BAAQMD condition #18310, part 16	Y	35,274,060 MM BTU/yr (HHV) for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 27a	C	Fuel meter, firing monitor, calculations	X	
Cold Start-Up, Combustor Tuning Firing Limit	BAAQMD condition #18310, part 48	Y	30 firing hours per year for S-1 and S-3 gas turbines, combined for purposes of cold start-up or combustor tuning	BAAQMD condition #18310, part 49	P/E	Recordkeeping	X	

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Table VII - B
Applicable Limits and Compliance Monitoring Requirements
S-3, HEAT RECOVERY STEAM GENERATOR #1
S-4, HEAT RECOVERY STEAM GENERATOR #2

Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
NOx	BAAQMD 9-9-301.1.3	N	9 ppmv @ 15% O ₂ , dry	BAAQMD 9-9-501	C	CEM	X	
NOx	SIP 9-9-301.3	Y	9 ppmv @ 15% O ₂ , dry	SIP 9-9-501	C	CEM	X	
NOx	BAAQMD 9-9-301.2	N	0.15 LB/MMBTU or 5 ppmv	BAAQMD 9-9-501	C	CEM	X	
NOx	NSPS, 40 CFR 60.44b (a)(4)(i)	Y	0.2 lb/ MM BTU except, during start-up, shutdown or malfunction	NSPS 40 CFR 60.48b (b)(2) and BAAQMD Condition #18310, part 27b	C	CEM	X	
NOx	NSPS, 40 CFR 60.332 (a)(1)	Y	75 ppmv @ 15% O ₂ , dry, 4-hour rolling average	NSPS 40 CFR 60.334(c.) and BAAQMD Condition #18310, part 27b	C	CEM	X	
NOx		Y	None	40 CFR 75.10	C	CEM	X	
NOx	BAAQMD condition #18310, part 20a	Y	19.2 lb/hr for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 20a	Y	19.2 lb/hr for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load	X	
NOx	BAAQMD condition #18310, part 20a	Y	0.00904 lb/MM BTU for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
NOx	BAAQMD condition #18310, part 20a	Y	0.00904 lb/MM BTU for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load	X	
NOx	BAAQMD condition #18310, part 20b	Y	2.5 ppmv, @ 15% O ₂ , dry, for each turbine/HRSG powertrain, 1-hr average except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load	X	
NOx	BAAQMD condition #18310, part 20b	Y	2.5 ppmv, @ 15% O ₂ , dry, for each turbine/HRSG powertrain, 1-hr average except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 24a	Y	1362.6 lb/day for S-1, S-3 Gas Turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, Part 27b	C	CEM	X	
NOx	BAAQMD condition #18310, part 25a	Y	123.4 ton/yr for S-1, S-3 Gas Turbines and S-2, S-4 HRSGs, combined (including emissions from commissioning period)	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 20c	Y	18.7 lb/hr, for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load and minimum load	X	
CO	BAAQMD condition #18310, part 20c	Y	18.7 lb/hr, for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 20d	Y	0.0088 lb/MM BTU for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load and minimum load	X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
CO	BAAQMD condition #18310, part 20d	Y	0.0088 lb/MM BTU for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 20d	Y	4 ppmv @ 15% O ₂ , dry, for each turbine/HRSG powertrain, 3-hr average, except during turbine startup and shutdown	BAAQMD condition #18310, Part 31	P/A	Source Test at maximum load and minimum load	X	
CO	BAAQMD condition #18310, part 20d	Y	4 ppmv @ 15% O ₂ , dry, for each turbine/HRSG powertrain, 3-hr average, except during turbine startup and shutdown	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 24b	Y	7,891.1 lb/day for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO	BAAQMD condition #18310, part 25b	Y	588 ton/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined (includes emissions from commissioning period)	BAAQMD condition #18310, Part 27b	C	CEM	X	
CO ₂		Y	None	40 CFR 75.10	C	fuel flow monitor and CO ₂ calculation	X	
SO ₂	BAAQMD 9-1-301	Y	GLC ¹ of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N		X	
SO ₂	BAAQMD 9-1-302	Y	300 ppm (dry)		N		X	
SO ₂	NSPS 40 CFR 60.333(a)	Y	0.015% (vol.) @ 15% O ₂ (dry)	NSPS 40 CFR 60.334(h)	N		X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
SO ₂	NSPS 40 CFR 60.333(b)	Y	Total sulfur content of fuel not to exceed 0.8 percent by weight (8000 ppmw)	NSPS 40 CFR 60.334(h)(3)(ii) and BAAQMD condition #18310, Part 45	P/M	Fuel sulfur content testing	X	
SO ₂		Y	None	40 CFR 75.11, 40 CFR 75, Appendix D, part 2.3	P/A	Fuel measurements, calculations	X	
SO ₂	BAAQMD condition #18310, part 20g	Y	1.28 lb/hr, for each turbine/HRSH powertrain	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
SO ₂	BAAQMD condition #18310, part 20g	Y	1.28 lb/hr, for each turbine/HRSH powertrain	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
SO ₂	BAAQMD condition #18310, part 20g	Y	0.0006lb/MM BTU, for each turbine/HRSG powertrain	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
SO ₂	BAAQMD condition #18310, part 20g	Y	0.0006lb/MM BTU, for each turbine/HRSG powertrain	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
SO ₂	BAAQMD condition #18310, part 24e	Y	57.9 lb/day for each turbine/HRSG powertrain	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
SO ₂	BAAQMD condition #18310, part 25e	Y	10.6 ton /yr for each turbine/HRSG powertrain (includes emissions from commissioning period)	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
Opacity	BAAQMD 6-1-301	N	> Ringelmann No. 1 for no more than 3 minutes in any hour		N		X	
Opacity	SIP 6-301	Y	> Ringelmann No. 1 for no more than 3 minutes in any hour		N		X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
FP	BAAQMD 6-1-310.3	N	0.15 grain/dscf @ 6% O2		N		X	
FP	SIP 6-310.3	Y	0.15 grain/dscf @ 6% O2		N		X	
PM	NSPS 40 CFR 60.42a (b)	Y	< 20% opacity, 6 minute average, except one six minute period/hr up to 27% opacity		N		X	
PM ₁₀	BAAQMD condition #18310, part 20h	Y	9 lb/hr, for each turbine/HRSG powertrain	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
PM ₁₀	BAAQMD condition #18310, part 20h	Y	0.00452 lb/MM BTU, for each turbine/HRSG powertrain	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
PM ₁₀	BAAQMD condition #18310, part 24d	Y	510 lb/day for S-1, S-3 Gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 24	P/D	Records, calculations	X	
PM ₁₀	BAAQMD condition #18310, part 25d	Y	83.34 ton/yr for S-1, S-3 Gas turbines and S-2, S-4 HRSGs, combined (including emissions from commissioning period)	BAAQMD condition #18310, part 25	P/D	Records, calculations	X	
POC	BAAQMD condition #18310, part 20f	Y	2.7 lb/hr (as CH4) for each turbine/HRSG powertrain except during turbine startup and shut down	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
POC	BAAQMD condition #18310, part 20f	Y	0.00126 lb/MM BTU (as CH4) for each turbine/HRSG powertrain except during turbine startup and shut down	BAAQMD condition #18310, part 31	P/A	Source test at maximum load	X	
POC	BAAQMD condition #18310, part 24c	Y	230.2 lb/day (as CH4) for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	

Metcalf Energy Center
Title V CEMS Semi-Annual Monitoring Report
July 1, 2017 – December 31, 2017.

Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
POC	BAAQMD condition #18310, part 25c	Y	28 ton/yr } for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined (including emissions from commissioning period)	BAAQMD condition #18310, part 28	P/D	Records, calculations	X	
NH ₃	BAAQMD condition #18310, part 20e	N	5 ppmv, @ 15% O ₂ dry, averaged over 3 hrs for each turbine/HRSG powertrain, except during turbine startup and shutdown	BAAQMD condition #18310, part 27c	C	Ammonia injection rate monitor	X	
Formaldehyde	BAAQMD condition #18310, part 26a	N	3796 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 29	P/D	Records, calculations	X	
Formaldehyde	BAAQMD condition #18310, part 26a	N	3796 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 33	P/every two years on P-1 or P-2	Source Test	X	
Benzene	BAAQMD condition #18310, part 26b	N	480 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 29	P/D	Records, calculations	X	
Benzene	BAAQMD condition #18310, part 26b	N	480 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 33	P/every two years on P-1 or P-2	Source Test	X	
Specific PAH Compounds	BAAQMD condition #18310, part 26c	N	22.8 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 29	P/D	Records, calculations	X	
Specific PAH Compounds	BAAQMD condition #18310, part 26c	N	22.8 lb/yr for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 33	P/every two years on P-1 or P-2	Source Test	X	
Heat input limit	BAAQMD condition #18310, part 14	Y	2,124 MM BTU/hr (HHV), 3-hr average for each turbine/HRSG powertrain	BAAQMD condition #18310, part 27a	C	Fuel meter, firing monitor, calculations	X	

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Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
Heat input limit	BAAQMD condition #18310, part 15	Y	49,908 MM BTU/calendar day (HHV), for each turbine/HRSG powertrain	BAAQMD condition #18310, part 27a	C	Fuel meter, firing monitor, calculations	X	
Heat input limit	BAAQMD condition #18310, part 16	Y	35,274,060 MM BTU/yr (HHV) for S-1, S-3 gas turbines and S-2, S-4 HRSGs, combined	BAAQMD condition #18310, part 27a	C	Fuel meter, firing monitor, calculations	X	
Prohibited firing	BAAQMD condition #18310, part 17	Y	Each HRSG duct burner may not be fired unless its associated gas turbine is being fired	BAAQMD condition #18310, part 27a	C	Fuel meter, firing monitor, calculations	X	

Metcalf Energy Center
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Table VII – C
Applicable Limits and Compliance Monitoring Requirements
S-5 COOLING TOWER

Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
Opacity	BAAQMD 6-1-301	N	>Ringelmann No.1 for no more than 3 minutes in any hour		N		X	
FP	BAAQMD 6-1-310	N	0.15 gr/dscf		N		X	
Opacity	SIP 6-301	Y	>Ringelmann No.1 for no more than 3 minutes in any hour		N		X	
FP	SIP 6-310	Y	0.15 gr/dscf		N		X	
Drift Rate	BAAQMD Condition #18310, part 46	Y	0.0005%	BAAQMD Condition #18310, part 46	P	Initial Source Test	X	
Total Dissolved Solids	BAAQMD Condition #18310, part 46	Y	5438 ppmw (mg/l)	BAAQMD Condition #18310, part 46	P/D	Sampling and Testing of cooling tower water	X	

Metcalf Energy Center
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Table VII – D
Applicable Limits and Compliance Monitoring Requirements
S-6 STATIONARY STANDBY GENERATOR SET

Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
Opacity	BAAQMD 6-1-301	N	>Ringelmann No.1 for no more than 3 minutes in any hour		N			
Opacity	SIP 6-301	Y	>Ringelmann No.1 for no more than 3 minutes in any hour		N			
FP	BAAQMD 6-1-310.3	N	0.15 gr/dscf @ 6% O ₂		N			
FP	SIP 6-310.3	Y	0.15 gr/dscf @ 6% O ₂		N			
SO ₂	BAAQMD 9-1-301	Y	GLC ¹ of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N			
SO ₂	BAAQMD 9-1-302	Y	300 ppm (dry)		N			
Heat Input Limit	BAAQMD Condition #22231 part 1	Y	14.1 MM BTU/hr		N			
Reliability Related activities	BAAQMD Condition #22231 part 2	Y	100 hours per calendar year	BAAQMD Condition #22231 part 6	P/E	Recordkeeping		
NOx, CO and POC	BAAQMD Condition #22231 part 3	Y	1.0 g NOx/bhp-hr 2.75 g CO/bhp-hr 1.0 g POC/bhp-hr		N			

SOURCE NOT
COMMISSIONED

Metcalf Energy Center
Title V CEMS Semi-Annual Monitoring Report
July 1, 2017 – December 31, 2017.

Table VII – E
Applicable Limits and Compliance Monitoring Requirements
S-7 FIRE PUMP DIESEL ENGINE

Type of Limit	Citation of Limit	FE Y/N	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type	Compliance	
							Yes	No
Opacity	BAAQMD 6-1-301	N	>Ringelmann No.2 for no more than 3 minutes in any hour		N		X	
Opacity	SIP 6-301	Y	>Ringelmann No.2 for no more than 3 minutes in any hour		N		X	
FP	BAAQMD 6-1-310.3	N	0.15 gr/dscf @ 6% O2		N		X	
FP	SIP 6-310.3	Y	0.15 gr/dscf @ 6% O2		N		X	
SO ₂	BAAQMD 9-1-301	Y	GLC ¹ of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N		X	
Fuel Sulfur Content	BAAQMD 9-1-304	Y	Sulfur Content ≤ 0.5% by weight		N		X	
SO ₂	BAAQMD Condition #19610, part 39	N	Sulfur content of fuel less than 0.05% by weight	BAAQMD Condition #19610, part 39	P/E		X	
Reliability Related activities	BAAQMD Condition #21917 part 1	Y	30 hours per calendar year	BAAQMD Condition #21917 part 2, 3	P/E	Totalizing Meter, record keeping	X	

Appendix 1

METCALF ENERGY CENTER, LLC

1 Blanchard Rd.
Coyote, CA 95013

November 21, 2017

Mr. Wayne Kino (wokino@baaqmd.gov)
Director, Enforcement and Compliance Division
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

**RE: Metcalf Energy Center, LLC Permit No. B2183
Major Facility Review Permit (Title V Permit)
30-Day Title V Non-Compliance Report
RCA No. 07F04**

To Whom It May Concern:

In accordance with the Major Facility Review Permit (Title V Permit) for the Metcalf Energy Center, LLC (the "Facility"), this letter is intended to satisfy the 30-day follow-up reporting requirement as required by Section I.F of the Title V Permit. The e Title V Permit 10-day deviation notification was submitted to the District on October 26, 2017.

On October 24, 2017, Combustion Turbine #1 experienced an indicated excess of the NH₃ Slip 3-hour rolling average emission limit of 5.0 ppm, as stated in Condition 20e of the Title V Permit. At 7:04 am UST the analyzers were placed into maintenance mode to perform the quarterly linearity and cylinder gas audits. At 10:13 am the technician finished the quarterly testing and immediately conducted a calibration to ensure the system is performing as it should.

However, towards the end of the calibration the unit experienced a combustion flashback, which temporarily increased the NO_x emissions. As the flashback on the combustion turbine occurred, the system finished the calibration and returned to normal operations, with the higher NO_x readings. The ammonia logic curve, which is used to maintain ammonia flow during periods of maintenance, registered the high NO_x and immediately adjusted ammonia flow to reduce NO_x. The ammonia injection curve stabilized ammonia flow after approximately nine minutes.

In a normal hour, the nine minutes would have been averaged over the entire period. However, in this case the system was in maintenance mode for 13 minutes, then calibration for 26 minutes, which skewed the average higher. Even though the system was in maintenance mode during this time period, data was still being recorded by the DAHS during the 13 minutes of maintenance. The data was masked by the system because the system was maintenance and therefore was not included in the hourly average (Appendix 1). After the data was unmasked, the system used the recorded data to recalculate the hourly value of 5.4 ppm and a 3-hour rolling average of 4.77 ppm, which is within permit limits.

In order to prevent this event in the future, the Facility is in the process of revising the ammonia logic curve to include additional parameters that increases the accuracy and reduces the stabilization time.

If you have any questions or require additional information, please contact Rosemary Silva, EHS Specialist, at 408-361-4954.

Based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate and complete.

Sincerely,



Terry Mahoney
General Manager
Metcalf Energy Center, LLC

Cc: Katherine Piper
Region IX
Anwar Ali

Calpine Corp.
EPA
CEC, AQ-34

APPENDIX 1

Metcalf
San Jose, CA

Turbine-1 Daily Compliance Report
October 24, 2017

1-Hr Emission Limits				3-Hr Rolling Emission 1-Limits			
NOx ppm @ 15% O2 - 2.5*				SOx lb/hr - 1.28*			
NOx lb/mmBtu - 0.00904*				PM lb/hr (w/DB) - 12.0*			
NOx lb/hr - 19.2*				PM lb/hr (w/o DB) - 9.0*			

CO ppm @ 15% O2 - 4.0*

CO lb/mmBtu - 0.0088*

CO lb/hr - 18.7*

NH3 Slip ppm @ 15% O2 - 5.0*

Hour	NOx ppm @ 15% O2*	NOx lb/mmBtu*	NOx lbs*	3-Hr Rolling CO ppm @ 15% O2 *	3-Hr Rolling CO lb/mmBtu*	3-Hr Rolling Normal Ops CO lbs*	3-Hr Rolling NH3 Slip ppm @ 15% O2 *	SOx lbs*	SOx lb/mmBtu	PM lbs*	PM lb/mmBtu	POC lbs*	POC lb/mmBtu	Process Status	
00	1.8	0.00645	12.43	0.3	0.0007	1.41	3.23	0.40	0.00021	3.86	0.00200	0.15	0.00008	Normal	
01	1.8	0.00674	12.98	0.4	0.0008	1.48	3.20	0.40	0.00021	3.85	0.00200	0.15	0.00008	Normal	
02	1.8	0.00645	12.39	0.3	0.0008	1.47	3.23	0.40	0.00021	3.84	0.00200	0.15	0.00008	Normal	
03	1.8	0.00674	13.00	0.4	0.0008	1.54	3.17	0.41	0.00021	3.86	0.00200	0.15	0.00008	Normal	
04	1.8	0.00674	13.01	0.3	0.0007	1.41	3.27	0.41	0.00021	3.86	0.00200	0.15	0.00008	Normal	
05	1.8	0.00665	12.92	0.4	0.0007	1.42	3.30	0.41	0.00021	3.89	0.00200	0.16	0.00008	Normal	
06	1.8	0.00665	12.98	0.4	0.0008	1.49	3.40	0.41	0.00021	3.90	0.00200	0.16	0.00008	Normal	
07	1.8	0.00674	12.97	0.4	0.0009	1.81	3.30	0.40	0.00021	3.85	0.00200	0.15	0.00008	Normal	
08	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	0.37	0.00021	3.55	0.00200	0.14	0.00008	Normal
09	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	0.36	0.00021	3.38	0.00200	0.14	0.00008	Normal
10	1.6	0.00597	10.55	Maint	Maint	Maint	Maint	Maint	0.37	0.00021	3.54	0.00200	0.14	0.00008	Normal
11	1.9	0.00703	13.44	Maint	Maint	Maint	Maint	Maint	0.40	0.00021	3.85	0.00200	0.15	0.00008	Normal
12	1.8	0.00656	12.69	0.0	0.0001	0.18	5.27 #	0.41	0.00021	3.87	0.00200	0.15	0.00008	Normal	
13	1.9	0.00685	13.27	0.0	0.0000	0.06	4.50	0.41	0.00021	3.87	0.00200	0.15	0.00008	Normal	
14	1.8	0.00656	12.66	0.0	0.0000	0.00	4.50	0.40	0.00021	3.86	0.00200	0.15	0.00008	Normal	
15	1.8	0.00656	12.60	0.0	0.0000	0.00	4.37	0.40	0.00021	3.84	0.00200	0.15	0.00008	Normal	
16	1.8	0.00656	12.57	0.0	0.0000	0.00	4.10	0.40	0.00021	3.83	0.00200	0.15	0.00008	Normal	
17	1.8	0.00665	12.72	0.0	0.0001	0.19	3.73	0.40	0.00021	3.83	0.00200	0.15	0.00008	Normal	
18	1.8	0.00694	13.35	0.1	0.0003	0.51	3.43	0.40	0.00021	3.84	0.00200	0.15	0.00008	Normal	
19	1.8	0.00656	12.68	0.1	0.0003	0.64	3.33	0.41	0.00021	3.87	0.00200	0.15	0.00008	Normal	
20	1.8	0.00694	13.43	0.1	0.0003	0.64	3.33	0.41	0.00021	3.87	0.00200	0.15	0.00008	Normal	
21	1.8	0.00656	12.75	0.1	0.0002	0.45	3.57	0.41	0.00021	3.89	0.00200	0.16	0.00008	Normal	
22	1.8	0.00665	12.92	0.1	0.0003	0.52	3.57	0.41	0.00021	3.89	0.00200	0.16	0.00008	Normal	
23	1.8	0.00665	12.84	0.1	0.0003	0.52	3.63	0.41	0.00021	3.86	0.00200	0.15	0.00008	Normal	
Average Total	1.8	0.00665	281.2	0.4	0.0009	1.81	5.27	0.6	0.00021	91.5	0.00200	3.6	0.00008		
Maximum	1.9	0.00703	13.4	0.4				0.4		3.9		0.2			

* - Excluding Startup and Shutdown

- Indicates Exceedance

Metcalf
 San Jose, CA

Turbine-1 Daily Emissions Report

October 24, 2017

1-Hr Emission Limits

NOx ppm @15% O ₂ - 2.5*	NOx lb/hr - 19.2
NOx lb/mmBtu - 0.00904	

Hour	O2%	NOx ppm	NOx ppm @15% O ₂	NOx lb/mmBtu	NOx lbs	CO ppm	CO ppm @15% O ₂	CO lb/mmBtu	CO lbs	NH3 ppm Slip @15% O ₂	SCR NOx ppm	Process Status
00	13.5	2.3	1.8	0.00674	12.98	0.4	0.3	0.0007	1.35	3.4	25.4	Normal
01	13.5	2.3	1.8	0.00674	12.97	0.5	0.4	0.0009	1.73	3.1	25.2	Normal
02	13.5	2.3	1.8	0.00674	12.95	0.4	0.3	0.0007	1.34	3.2	25.4	Normal
03	13.5	2.3	1.8	0.00674	13.00	0.4	0.3	0.0007	1.35	3.2	25.5	Normal
04	13.5	2.3	1.8	0.00674	13.02	0.4	0.3	0.0007	1.35	3.4	26.0	Normal
05	13.4	2.3	1.8	0.00665	12.92	0.5	0.4	0.0009	1.75	3.3	25.5	Normal
06	13.4	2.3	1.8	0.00665	12.98	0.5	0.4	0.0009	1.76	3.5	25.7	Normal
07	13.5	2.3	1.8	0.00674	12.97	0.6	0.5	0.0011	2.12	3.1	25.2	Normal
08	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Normal
09	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Normal
10	14.0	1.9	1.6	0.00597	10.55	0.1	0.1	0.0002	0.35	6.9	27.3	Normal
11	13.5	2.4	1.9	0.00703	13.43	0.0	0.0	0.0000	0.00	4.5	28.9	Normal
12	13.3	2.3	1.8	0.00656	12.70	0.0	0.0	0.0000	0.00	4.4	29.0	Normal
13	13.3	2.4	1.9	0.00685	13.27	0.0	0.0	0.0000	0.00	4.6	30.5	Normal
14	13.3	2.3	1.8	0.00656	12.65	0.0	0.0	0.0000	0.00	4.5	30.3	Normal
15	13.3	2.3	1.8	0.00656	12.61	0.0	0.0	0.0000	0.00	4.0	28.3	Normal
16	13.3	2.3	1.8	0.00656	12.58	0.0	0.0	0.0000	0.00	3.8	27.7	Normal
17	13.4	2.3	1.8	0.00665	12.72	0.2	0.2	0.0004	0.77	3.4	25.6	Normal
18	13.4	2.4	1.9	0.00694	13.34	0.3	0.2	0.0005	0.96	3.1	25.0	Normal
19	13.4	2.3	1.8	0.00685	12.85	0.1	0.1	0.0002	0.39	3.5	26.4	Normal
20	13.4	2.4	1.9	0.00694	13.42	0.2	0.2	0.0004	0.78	3.4	26.1	Normal
21	13.4	2.3	1.8	0.00685	12.94	0.1	0.1	0.0002	0.39	3.8	27.0	Normal
22	13.4	2.3	1.8	0.00685	12.93	0.2	0.2	0.0004	0.78	3.5	26.1	Normal
23	13.4	2.3	1.8	0.00685	12.84	0.2	0.2	0.0004	0.77	3.6	26.4	Normal
Average Total	13.4	2.3	1.8	0.00668	12.8	0.2	0.2	0.0004	0.8	3.8	26.8	

* Excluding Startup & Shutdown

APPENDIX 2

Metcalfe
San Jose, CA

Turbine-1 Daily Compliance Report
October 24, 2017

REVISED

NOx ppm @15% O₂ - 2.5*
NOx lb/mmBtu - 0.00904*
NOx lb/hr - 19.2*

SOx lb/hr - 1.28*

PM lb/hr (w/DB) - 12.0*

PM lb/hr (w/o DB) - 9.0*

POC lb/hr - 2.7*

NH3 Slip ppm @15% O₂ - 5.0*

3-Hr Rolling Emission Limits

CO ppm @15% O₂ - 4.0*

CO lb/mmBtu - 0.0088*

CO lb/hr - 18.7*

NH3 Slip ppm @15% O₂ - 5.0*

Hour	1-Hr Emission Limits			3-Hr Rolling Emission Limits			3-Hr Rolling Emission Limits			Process Status					
	NOx ppm @15% O ₂ *	NOx lb/mmBtu*	NOx lbs*	3-Hr Rolling CO ppm @15% O ₂ *	3-Hr Rolling CO lb/mmBtu*	3-Hr Rolling Normal Ops CO lbs*	3-Hr Rolling NH3 Slip ppm @15% O ₂ *	SOx lbs*	SOx lb/mmBtu	PM lbs*	PM lb/mmBtu	POC lbs*	POC lb/mmBtu		
00	1.8	0.00645	12.43	0.3	0.0007	1.41	3.23	0.40	0.00021	3.86	0.00200	0.15	0.00008	Normal	
01	1.8	0.00674	12.98	0.4	0.0008	1.48	3.20	0.40	0.00021	3.85	0.00200	0.15	0.00008	Normal	
02	1.8	0.00645	12.39	0.3	0.0008	1.47	3.23	0.40	0.00021	3.84	0.00200	0.15	0.00008	Normal	
03	1.8	0.00674	13.00	0.4	0.0008	1.54	3.17	0.41	0.00021	3.86	0.00200	0.15	0.00008	Normal	
04	1.8	0.00674	13.01	0.3	0.0007	1.41	3.27	0.41	0.00021	3.86	0.00200	0.15	0.00008	Normal	
05	1.8	0.00665	12.92	0.4	0.0007	1.42	3.30	0.41	0.00021	3.89	0.00200	0.16	0.00008	Normal	
06	1.8	0.00665	12.98	0.4	0.0008	1.49	3.40	0.41	0.00021	3.90	0.00200	0.16	0.00008	Normal	
07	1.8	0.00674	12.97	0.4	0.0009	1.81	3.30	0.40	0.00021	3.85	0.00200	0.15	0.00008	Normal	
08	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	0.37	0.00021	3.55	0.00200	0.14	0.00008	Normal
09	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	0.36	0.00021	3.38	0.00200	0.14	0.00008	Normal
10	1.6	0.00597	10.55	Maint	Maint	Maint	Maint	Maint	0.37	0.00021	3.54	0.00200	0.14	0.00008	Normal
11	1.9	0.00703	13.44	Maint	Maint	Maint	Maint	Maint	0.40	0.00021	3.85	0.00200	0.15	0.00008	Normal
12	1.8	0.00656	12.69	0.2	0.0004	0.71	4.77	0.41	0.00021	3.87	0.00200	0.15	0.00008	Normal	
13	1.9	0.00685	13.27	0.0	0.0000	0.06	4.50	0.41	0.00021	3.87	0.00200	0.15	0.00008	Normal	
14	1.8	0.00656	12.66	0.0	0.0000	0.00	4.50	0.40	0.00021	3.86	0.00200	0.15	0.00008	Normal	
15	1.8	0.00656	12.60	0.0	0.0000	0.00	4.37	0.40	0.00021	3.84	0.00200	0.15	0.00008	Normal	
16	1.8	0.00656	12.57	0.0	0.0000	0.00	4.10	0.40	0.00021	3.83	0.00200	0.15	0.00008	Normal	
17	1.8	0.00665	12.72	0.0	0.0001	0.19	3.73	0.40	0.00021	3.83	0.00200	0.15	0.00008	Normal	
18	1.8	0.00694	13.35	0.1	0.0003	0.51	3.43	0.40	0.00021	3.84	0.00200	0.15	0.00008	Normal	
19	1.8	0.00656	12.68	0.1	0.0003	0.64	3.33	0.41	0.00021	3.87	0.00200	0.15	0.00008	Normal	
20	1.8	0.00694	13.43	0.1	0.0003	0.64	3.33	0.41	0.00021	3.87	0.00200	0.15	0.00008	Normal	
21	1.8	0.00656	12.75	0.1	0.0002	0.45	3.57	0.41	0.00021	3.89	0.00200	0.16	0.00008	Normal	
22	1.8	0.00665	12.92	0.1	0.0003	0.52	3.57	0.41	0.00021	3.89	0.00200	0.16	0.00008	Normal	
23	1.8	0.00665	12.84	0.1	0.0003	0.52	3.63	0.41	0.00021	3.86	0.00200	0.15	0.00008	Normal	
Average Total Maximum	1.8	0.00665	281.2	0.4	0.0009	1.81	4.77	0.6	0.00021	91.5	0.00200	3.6	0.00008		

* - Excluding Startup and Shutdown

- Indicates Exceedance

Metcalf
San Jose, CA

REVISED

Turbine-1 Daily Emissions Report

October 24, 2017

1-Hr Emission Limits
NOx ppm @15% O₂ - 2.5*
NOx lb/mmBtu - 0.00904

Hour	O2%	NOx ppm	NOx ppm @15% O ₂	NOx	lb/mmBtu	NOx lbs	CO ppm	CO ppm @15% O ₂	CO	lb/mmBtu	CO lbs	NH3 ppm Slip @15% O ₂	SCR NOx ppm	Process Status
00	13.5	2.3	1.8	0.00674	12.99	0.4	0.3	0.007	1.36	3.4	25.4	Normal		
01	13.5	2.3	1.8	0.00674	12.97	0.5	0.4	0.009	1.73	3.1	25.2	Normal		
02	13.5	2.3	1.8	0.00674	12.95	0.4	0.3	0.007	1.34	3.2	25.4	Normal		
03	13.5	2.3	1.8	0.00674	13.00	0.4	0.3	0.007	1.35	3.2	25.5	Normal		
04	13.5	2.3	1.8	0.00674	13.02	0.4	0.3	0.007	1.35	3.4	26.0	Normal		
05	13.4	2.3	1.8	0.00665	12.92	0.5	0.4	0.009	1.75	3.3	25.5	Normal		
06	13.4	2.3	1.8	0.00665	12.98	0.5	0.4	0.009	1.76	3.5	25.7	Normal		
07	13.5	2.3	1.8	0.00674	12.97	0.6	0.5	0.011	2.12	3.1	25.2	Normal		
08	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Normal
09	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Maint	Normal
10	14.0	1.9	1.6	0.00597	10.55	0.1	0.1	0.002	0.35	5.4	27.3	Normal		
11	13.5	2.4	1.9	0.00703	13.43	0.0	0.0	0.000	0.00	4.5	28.9	Normal		
12	13.3	2.3	1.8	0.00656	12.70	0.0	0.0	0.000	0.00	4.4	29.0	Normal		
13	13.3	2.4	1.9	0.00685	13.27	0.0	0.0	0.000	0.00	4.6	30.5	Normal		
14	13.3	2.3	1.8	0.00656	12.65	0.0	0.0	0.000	0.00	4.5	30.3	Normal		
15	13.3	2.3	1.8	0.00656	12.61	0.0	0.0	0.000	0.00	4.0	28.3	Normal		
16	13.3	2.3	1.8	0.00656	12.58	0.0	0.0	0.000	0.00	3.8	27.7	Normal		
17	13.4	2.3	1.8	0.00665	12.72	0.2	0.2	0.004	0.77	3.4	25.6	Normal		
18	13.4	2.4	1.9	0.00694	13.34	0.3	0.2	0.005	0.96	3.1	25.0	Normal		
19	13.4	2.3	1.8	0.00665	12.85	0.1	0.1	0.002	0.39	3.5	26.4	Normal		
20	13.4	2.4	1.9	0.00694	13.42	0.2	0.2	0.004	0.78	3.4	26.1	Normal		
21	13.4	2.3	1.8	0.00665	12.94	0.1	0.1	0.002	0.39	3.8	27.0	Normal		
22	13.4	2.3	1.8	0.00665	12.93	0.2	0.2	0.004	0.78	3.5	26.1	Normal		
23	Average Total	13.4	2.3	1.8	0.00668	12.8	0.2	0.004	0.8	3.7	26.8			
					282.6				17.9					

* Excluding Startup & Shutdown